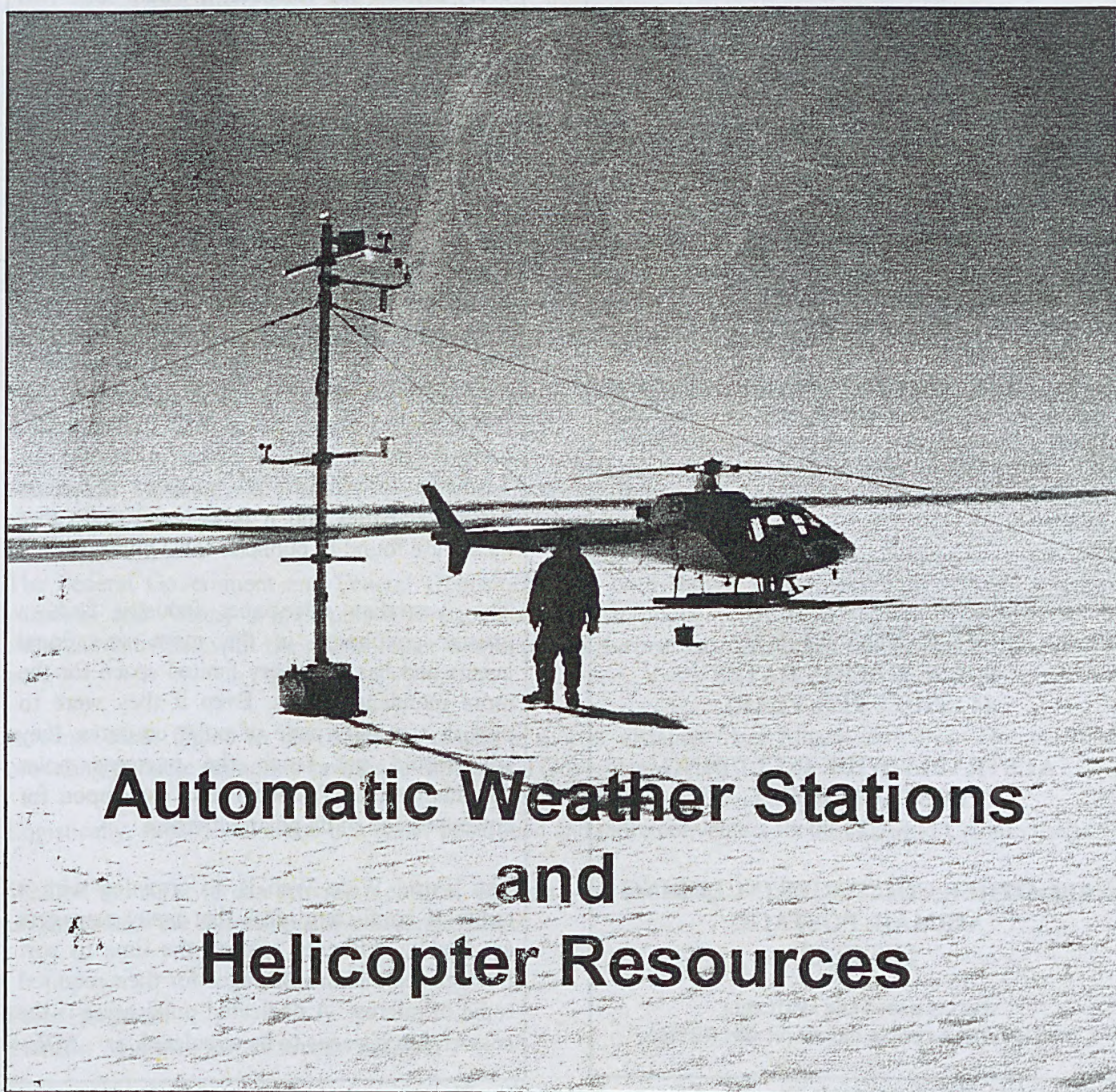


ICE BREAKER

No.11

June 2000



**Automatic Weather Stations
and
Helicopter Resources**

ICE BREAKER

ICE BREAKER is published independently by Malcolm Wallhead and Associates as a quarterly magazine covering Tasmanian Polar and Southern Ocean related topics.

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EDITORIAL

Improving Tasmania's polar image and trying to ensure that those who should know about Tasmania's polar role do in fact know, was much a topic for discussion at the Third Governor's Forum. In an effort to try to overcome this obvious publicity gap ICE BREAKER magazine has recently managed to increase its circulation slightly and continually strives for more readers, especially overseas readers. However, unless sponsorship of some sort can be found so that copies can be sent to every active Polar Institute, it would seem that ICE BREAKER magazine will remain mostly to be read by the already converted.

One bright note came about as a result of Peter Hodgman's letter in the magazine's March issue, where he stated that "it is important that the Tasmanian polar community make known its activities, not only locally but to overseas contacts as well." As a direct result of this letter, Tasmania now has a regular column (written by the editor of ICE BREAKER) in the ANARE Club's *Aurora* magazine, which is published in Melbourne and distributed to 1,100 readers across the globe. Unfortunately, there is limited space available in *Aurora* for Tasmania to publish full up-dates about its current activities and it is essential that other means are found to publicise local polar news.

The Australian newspaper industry finds a greater circulation in the more sensational events and has only very limited space for the more mundane stories. Even if they were to publish a weekly page of polar up-dates, they still would not reach the overseas polar community that Tasmania must rely upon for any expansion of its polar activities.

The World Wide Web is so crowded with a range of conflicting ideas that many managers are finding difficulty sparing the time to sort through the millions of pages for their required topic of interest. A dedicated publication is the answer, but it needs to be circulated. MW

Cover photo: Automatic Weather Station, Antarctica. Photo courtesy AAD and BoM, Hobart.

A MESSAGE FOR ICE BREAKER READERS

His Excellency The Governor, The Honourable Sir Guy Green AC KBE has kindly hosted the third Governor's Antarctic Forum, which has taken the Antarctic portfolio to new dimensions and I thank him very much.

The first Governor's Forum was a "think tank" leading into the second Forum which established various committees to investigate and report back.

The third Governor's Forum was informed of each committees deliberations and I would like to place on public record my appreciation for the extremely exhausting effort that those committees undertook in the course of their deliberations. From His Excellency's opening speech the Forum was provided with a professional understanding of our Antarctic opportunities and other matters related thereto.

Where to from here?

I believe that should there be any future Forums they should be specific issue driven. With such subjects as re-supply opportunities, air flights to the Antarctic, the sub Antarctic region, exploration of fisheries to name a few. Whilst I acknowledge that some of these issues may appear to already be dealt with I nonetheless believe that more research is required.

An example of that is a visit I conducted to Albany, Western Australia, since the Governor's last Forum to assess their potential as a competitor to Hobart for Antarctic flights. The evidence I received is quite alarming. Albany logistically could handle the flights from their airport, they have the accommodation and other commercial interests capable of handling the needs of Antarctic expeditions.

They are about to spend a further 13 million dollars upgrading their wharves to accommodate stevedoring requirements.

Finally, the Albany Council advised me they are intending to head off to Canberra shortly to put a serious bid in for the air flights.

The Federal Government and Federal Opposition have both shown a keen desire to support regional Australia and Albany is well placed to capitalise on that policy. They have already been involved in Antarctic activities with the recent repair works on the *Aurora Australis* being undertaken at the Albany port.

In some cases flights to the Antarctic maybe a shorter distance from Albany than from Hobart, thus providing possible economic savings to the Federal Government.

Logistically, Albany will argue it is better positioned and more convenient for Russian and Chinese usage.

Whilst I am sure we can provide a counter argument the one thing we can not do is be complacent and underestimate the seriousness of this competition.

Peter Hodgman
Shadow Minister for Antarctic Affairs

POLAR PUBLICATIONS

BOOKS:

'THAT FIRST ANTARCTIC WINTER: The story of the Southern Cross Expedition of 1898-1900, as told in the diaries of Louis Charles Bernacchi' by Janet Crawford. Published by South Latitude Research. Price: \$90.

Janet Crawford wrote and edited this book, which was based on her grandfather's diary as well as her own interpretations of events.

'TRIAL BY ICE: The Antarctic Journals of John King Davis' edited by Louise Crossley. Published by Erskine Press. Price: \$55.

These journals provide a clear contrast to Mawson's diaries and his attitude to his men by describing events during Davis' Antarctic voyages for Shackleton's expeditions, as well as Mawson's.

'ANTARCTIC EYE WITNESS: South with Mawson, and Shackleton's Argonauts' by Charles F. Laserson and Frank Hurley, introduced by Tim Bowden. Published by Angus & Robertson. Price: \$29.95.

This book is based on journal entries, photographs and subsequent books written by these early Antarctic expeditioners.

'THE PROTOCOL FOR THE ACCEPTANCES OF WASTES FROM THE ANTARCTIC' by Pat Deprez. Available soon. Contact the Office of Antarctic Affairs, Hobart, Tas. Also at www.oaa.tas.gov.au

ANTARCTIC ENVIRONMENTAL ACRONYMS

ASPA	Antarctic Specially Protected Area
ASMA	Antarctic Specially Managed Area
SSSI	Site of Special Scientific Interest
AT(EP)Act	Australia's Antarctic Treaty (Environmental Protection) Act 1980
CEP	Committee for Environmental Protection
GOSEAC	Group of Specialists on Environmental Affairs and Conservation
PA	Preliminary Assessment
IEE	Initial Environmental Evaluation
CEE	Comprehensive Environmental Evaluation
EIA	Environmental Impact Assessment
SEA	Strategic Environmental Assessment

So... if one enters an ASPA, an ASMA or a SSSI, you may find that because of the AT(EP) Act, the CEP or GOSEAC will have undertaken a PA and an IEE, then a CEE, in order to write an EIA or a SEA!

(Thanks to Dr. Lorne Kriwoken, Centre for Environmental Studies, University of Tasmania, for providing all the acronyms and their meanings).

TPN CHAIRMAN'S MESSAGE

The highlight of the period since the last issue of ICE BREAKER magazine was undoubtedly the third Antarctic Forum held at Government House and hosted by the Governor of Tasmania, Sir Guy Green.

We are very fortunate to have such high level support and these Forums are rapidly creating a consensus which would not otherwise be easily achieved given the wide group of interest and involvement in matters Antarctic.

Sir Guy's support is mirrored by the Australian Antarctic Division and Tony Press and Kim Pitt's willingness to allow the Tasmanian Polar Network a very high degree of transparency into the Division's activities and planning.

As TPN Chairman, I want to place on the record the Network's gratitude to both these parties; we are fortunate indeed.

I believe the issues raised and discussed at the Forum have distilled our focus considerably to the point where now it is quite clear that the proposed Antarctic Airlink for the needs and purposes of the AAD is the key to a wide range of opportunities for the Tasmanian Community, both its citizens and traders.

We eagerly now await Senator Hill's announcement of the Airlink's implementation. We hope and expect that it will confirm Hobart as the point of embarkation but until that is certain we must be a bit reserved in our planning.

If Hobart is in fact confirmed, then I believe our next challenge as a Network and as a State will be to woo as many other countries as possible to use the Airlink, subject of course to it being possible and acceptable to the Federal Government and the AAD. Jack Sayers' COMNAP networks are pivotal in this and we are again extremely fortunate to have these networks based in Hobart-- a testimony to those who have gone before us I think.

If and when we are able to get other countries using the Airlink from Hobart our challenge then will be to convince them that we are able to meet their needs from Hobart without them needing to send to the Northern Hemisphere. This will require a high degree of co-operation from the Tasmanian commercial community across many fields. For this reason the Network has sought to build a relationship with the TCCI and it was good to see both the Executive Director, Tim Abey, and the Chairman, Andrew Kemp, participating in the Governor's Forum.

The other key potential spinoff from the Airlink lies in Tourism and whilst there is still a way to go with this I believe it holds much potential benefit for our State.

I reiterate my previously expressed personal conviction that we are in the midst of exciting and potentially rewarding developments in matters Antarctic.

These are unique opportunities for us and I urge everyone to both 'dream the dream' and pursue its delivery for the good of our State and its people.

Bill Lawson. Chairman, TPN.

THE THIRD GOVERNOR'S FORUM

OR

CLOSER ENCOUNTERS WITH HOBART'S ANTARCTIC FUTURE

Congratulations must go to the Governor of Tasmania, Sir Guy Green, for his inspirational hosting of the Governor's Forums on the Antarctic, the Sub-Antarctic and the Southern Ocean. While this title is perhaps somewhat drawn out to those uninvolved in Antarctic activities, there was nothing drawn out about the third Forum, held in May this year, when participants heard reports from working parties investigating opportunities for Tasmanians in Tourism, Antarctic Air Links, Education and Training, and Environmental Protection.

Sincere thanks must also go to those who chaired each Working Party, and their assistants, for the five months work put into defining and analysing the topics, assessing their future potential and presenting recommendations - all without leave from their normal busy workloads!

Whereas the first two Forums, held in September 1996 and November 1999, tended to be fairly formal, the third forum was noted for its animation, with occasional light-hearted anecdotes and somewhat irreverent comments punctuating the keynote speakers' presentations and the discussions which followed each session. Even minor glitches such as a specially designed website being unavailable at the last moment, and provocative pictures, including an easily recognisable local mountain as a possible site for a wind-powered testing facility, were well received.

What emerged from the one and a half day Forum was a much stronger sense of unity amongst the majority of participants. Whether their area of interest (or bias!) was towards Antarctic scientific research, education, conservation, tourism, commercial goods and services, or local and state government concerns, the third Governor's Forum opened up even more communication lines between these groups.



Sir Guy Green at the Third Governor's Forum

Some members of the Working Parties will be proceeding immediately with further developments of the recommendations made, and with the interest and backing of Hobart's growing Antarctic community (plus vital funding and publicity!), global attention is bound to be directed to the full range of Tasmania's Antarctic connections and Hobart's significance as a major gateway to the south.

A full report of the proceedings will be published by the Office of the Governor, and some of the recommendations made by the Working Parties will be included in the State Government's Draft Antarctic Policy which is due to be released in June 2000.

AW

ANTARCTIC AIR TRANSPORT UPDATE

From the office of Dr Jo Jacka of the AAD

Readers may recall that a Scoping Study for an Antarctic Air Transport system was carried out last year by the Australian Antarctic Division. Since then, studies have been made during the summer season of potential runway sites near Davis and in the Bunger Hills area, as recommended by the study.

A report of the summer's work along with recommendations for further work has been prepared and it is expected that this report will be publicly available in the near future. Three automatic weather stations (AWS) were installed at potential airfield locations in order to begin monitoring meteorological conditions. A separate report on the first measurements from the AWS appears elsewhere in this edition of ICE BREAKER magazine.

In the mean time, Dr Jo Jacka has been appointed to continue the air transport work. Dr Jacka, until now a glaciologist with the Division, has promised to provide ICE BREAKER with regular reports of progress towards development of an Antarctic Air System. (Dr Jacka took over the position from James Shevlin who had spent many months co-ordinating the Air Transport Scoping study before returning to Canberra, ACT at the end of March 2000. Ed.)

FREE ANTARCTIC TALKS

Though many of the topics covered at the third Governor's Forum on "The Antarctic, the sub-Antarctic and the Southern Ocean" in May this year still have to be worked on further, the Tasmanian public are already reaping at least one direct benefit as a result of it.

A series of weekly talks about a variety of Antarctic activities has been organised by Rod Ledingham, Field Equipment and Training Officer and Tom Maggs from the Australian Antarctic Division.

Inspired by some of the topics discussed at the recent Forum, Rod and Tom have arranged for these talks to be freely accessible to the public.

Rod Ledingham explained "The talks are about science and general Antarctic subjects that may be of interest, from 'What's it like?' type lectures to particular science programs. There are plenty of talks at University, the Antarctic Division and the CSIRO but none for outsiders."

The talks are being held each Friday between 5.30 and 6.30 PM at Antarctic Adventure in Salamanca Square. (Entrance by the side door - watch for the signs.)

The first talk was held on May 19 entitled "An Adventure on the Antarctic Peninsula 30 years ago. A minor mishap that had unusual consequences" by Rod Ledingham. This was followed by "A Dog Journey along the Mawson Coast" by Tom Maggs on Friday May 26.

More lectures are planned for June (See Polar Calendar this Issue ICE BREAKER) and for July and anyone who would like to give a talk or 'dob in a friend' can get in touch with either Tom Maggs (tom_mag@antdiv.gov.au) or Rod Ledingham (rod_led@antdiv.gov.au) or phone 6232 3280.

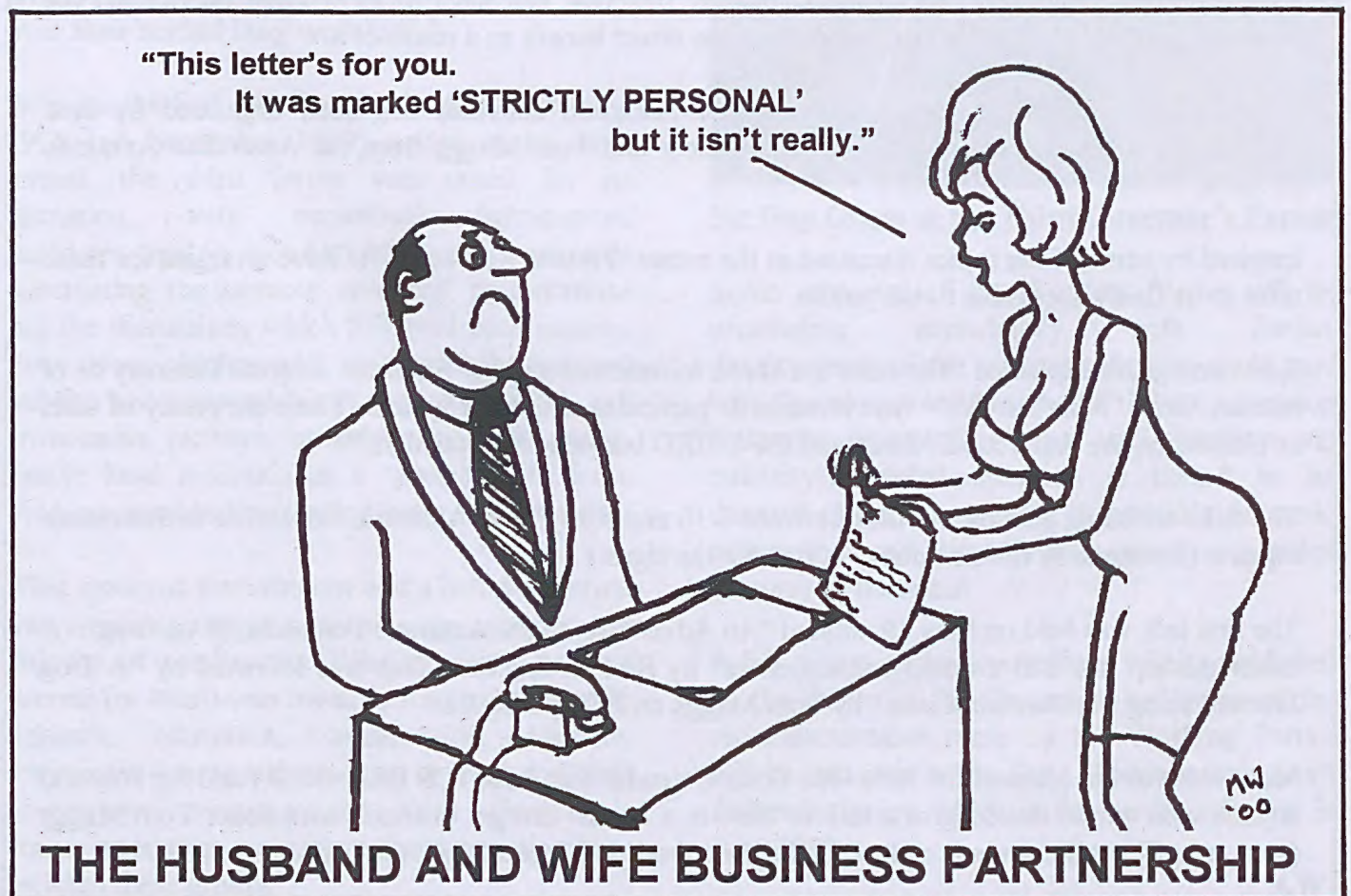
TPN TOKYO DISPLAY DEVELOPMENTS

The Office of Antarctic Affairs is now preparing display materials for the Tasmanian Polar Network's booth at the trade exhibition to be held in conjunction with the SCAR / COMNAP / SCALOP meetings in Tokyo, Japan in July 2000.

The exhibition will be held from the 10th to 14th at the Olympic Memorial National Youth Centre and the TPN is one of 13 organisations from around the world to display their goods and services. Others include a French group specialising in electronic equipment; a Swiss snowplough company; an aircraft leasing and chartering business; the Shanghai Lingqiao Environmental Protection Equipment Industry as well as several Japanese Corporations.

The booths will be set up on Sunday, July 9th in the afternoon and attended from 9 am to 5 pm Monday to Thursday and 9 am to 1 pm on Friday. Malcolm Wallhead, Senior Vice President and Antoine Guichard, Vice President, will be representing TPN members and Steve Kons (Labor) and Peter Hodgman (Liberal) will also be attending.

The TPN both will generally be focusing on Hobart and encouraging delegates to the meetings to visit Tasmania to discover and explore the diverse and growing range of Antarctic facilities as well as the polar goods and services that are currently available here.



POLAR NEWS

HOBART CLOSER TO HOME PORT

- The Russian-built OLGA SADOVSKAYA, now renamed SOUTHERN AUSTRALIA, is still expected to be available for Southern Ocean cruises starting in Hobart by the next summer season. The program includes two 21 day voyages to Macquarie Island and Antarctica, plus possible 5 day cruises around Tasmania.

- Last month, Don McIntyre's company, Ocean Frontiers, also acquired an ice-strengthened vessel for Antarctic operations. The TUTKA (now in Finland) has been renamed SIR HUBERT WILKINS after the pioneer Australian polar explorer, and the ship will undergo extensive refitting and upgrading before arriving in its home port Hobart in mid-November 2000. Two voyages are planned to coastal areas of George V, Oates and Victoria Lands during the 2000-01 season. For photos and details of the ship, see:

www.oceanfrontiers.com.au

- While 18 visits to Hobart by cruise ships have already been booked for the next season, at least one European company is interested in using Hobart as its home port during summer to introduce European and American tourists to Tasmania's wilderness areas.

OCEAN OFFICE'S LATEST PLAN

The newly established National Oceans Office in Hobart has given notice of a South East Regional Marine Plan for areas off southern NSW, eastern South Australia, Victoria and Tasmania, including Macquarie Island. Input into the initial Scoping Study from interested groups has been invited, and further information is obtainable at:

www.oceans.gov.au

(N.B. The new head of the National Oceans Office is Veronica Saker, not Alex Schaap, as mentioned in a previous issue).

POLLUTION EFFECTS

Sea urchin embryos in the sea near the old Casey Station's rubbish tip are more susceptible to low pollutants than similar species in warmer waters.

NZ ANTARCTIC TOURISM

Antarctica New Zealand (ANZ) is holding a one day workshop on the effects of tourism in Antarctica, mainly focusing on the Ross Sea region. The workshop is open to commercial operators and organisations involved in environmental protection, and aims to define ANZ's role in polar tourism activities.

COMMONWEALTH BAY ARRIVALS

Several ships will be visiting the Commonwealth Bay area in Antarctica next season, including one with a private volunteer group, the Ocean Research Foundation (ORF), which hopes to recover 3 anchors lost overboard from Mawson's ship AURORA in 1912. The group will be using EXPLORER, originally known as the DICK SMITH EXPLORER, a 20m, 2 masted steel schooner. Also visiting will be the McIntyre's SIR HUBERT WILKINS (see Polar News item); the AAP Mawson's Hut Foundation group who intend to complete conservation on the buildings, and tourists from the KAPITAN KHLEBNIKOV when it arrives in February next year.

AWARENESS AND ACTION

A new Australian website has been launched to educate people on global environmental issues, so that more volunteers and financial sponsors can be found to support existing conservation organisations such as Greenpeace, Planet Ark and United Nations groups. Developed by Robert Swan, the first man to walk solo to both Poles, and Mark Braithwaite, a Sydney businessman, the main aim of the website is to activate 1 million 'green ambassadors' in 2 years, so that positive steps can be taken to conserve the environment. For further details: www.takethenextstep.com

HIGH PRICED POLAR ITEMS

A biscuit from Sir Ernest Shackleton's 1907-09 expedition recently sold in London for nearly \$A13,300. It was purchased by a relative of Sir Phillip Brocklehurst, one of Shackleton's team.

WASTED DOLLARS

Australian taxpayers will bear the clean-up costs of \$175,000 this year, for clearing waste dumped on the outskirts of two Antarctic bases.

Automatic Weather Stations: **A Necessity for Inter-Continental Flights**

Kieran Jacka
Antarctic CRC and Bureau of Meteorology

The Antarctic Air Transport Scoping Study, completed in 1999, recommended a number of sites as potentially suitable for the landing of inter-continental flights.

During the 1999/2000 summer new automatic weather stations (AWS) were installed at three potential landing sites:

- A blue ice site in the Bunger Hills area 460 km west of Casey
- A blue ice site on the plateau 6 km inland of Mawson; and
- A blue ice site inland of the Rauer Islands, South of Davis. (See Front Cover Photo)

The stations were built in-house by the Australian Antarctic Division. The Division (mainly through Dr Ian Allison) has maintained a program of AWS in Antarctica for over two decades. The most extensive network of stations is that installed around the Lambert Glacier Basin during the early to mid-1990's. After many years of experimentation the Division's AWS have reached a high level of reliability and are widely regarded as state-of-the-art.

Data from these new stations, and others, are being analysed in preparation for possible aircraft operations. Each of the stations records wind speed and direction from two anemometers, as well as air pressure, air temperature, relative humidity, and the temperature below the snow surface. Data is received through the ARGOS satellite system and transmitted world-wide via the Global Telecommunications System. Data are archived at Antarctic Division in Kingston.

The attached figures (1a, 1b and 1c) show air temperature from 1 February to 31 April 2000 at Mawson Airport, Davis Airport and Bunger Hills respectively. Temperature is recorded two metres above the snow surface.

Figures 2a, 2b and 2c show wind gust data from the three stations. This parameter is a measure of the maximum gust recorded over a ten second period by the anemometer mounted four metres above the snow surface.

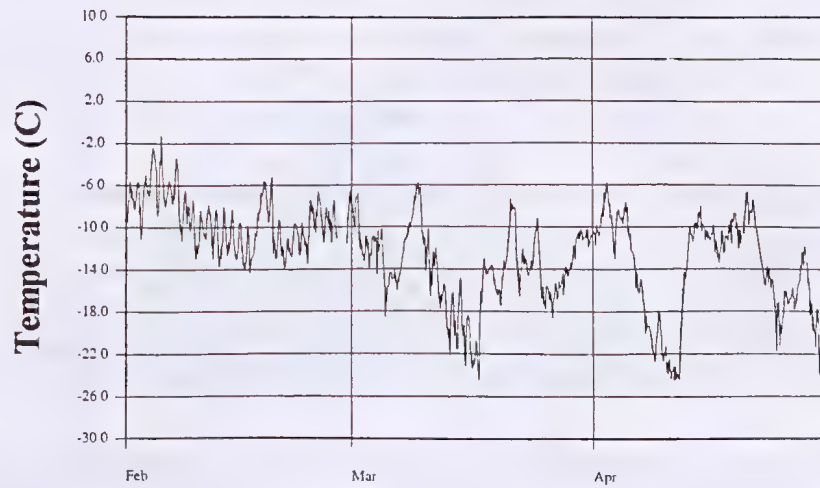
Aviation weather forecasting in Antarctica is a particularly challenging problem. Safe operations rely on our ability to forecast a variety of parameters including:

- Wind speed, direction and gust strength;
- Cloud and precipitation;
- Temperature and humidity; and
- Whiteout

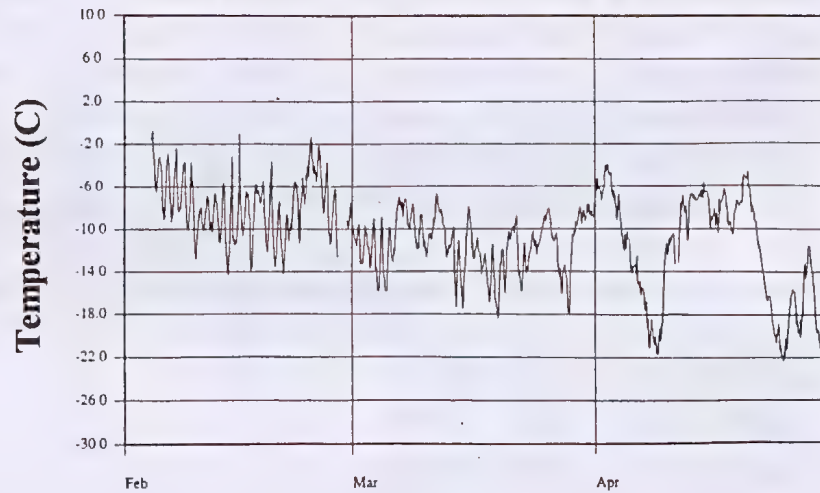
While conventional AWS provide valuable data, they cannot give us all the clues necessary to forecast every parameter. The job is not a simple one. In spite of the swathe of information available - via satellite remote sensing technology and advanced numerical weather prediction systems - our ability to forecast the weather in the difficult Antarctic environment is still in the developing stages.

By necessity, Meteorologists will need to make a substantial contribution to the air transport project. As a community we look forward to being involved.

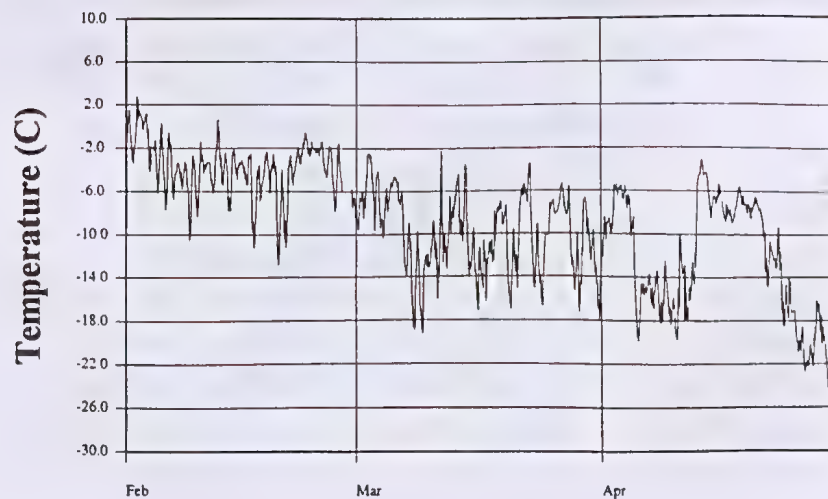
(1a) Mawson Airport - Air temperature graph



(1b) Davis Airport - Air temperature graph

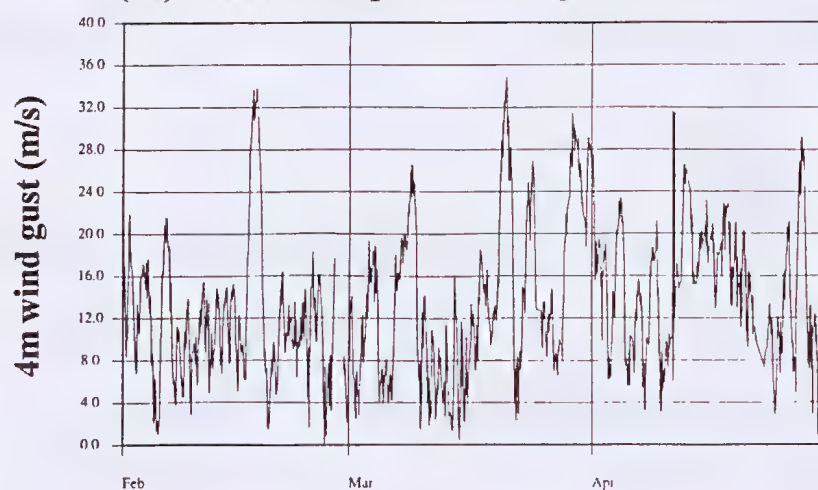


(1c) Bunger Hills - Air temperature graph

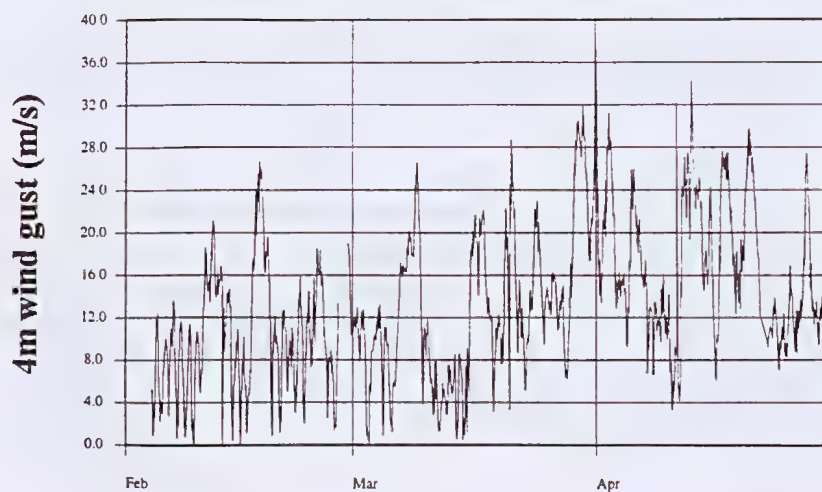


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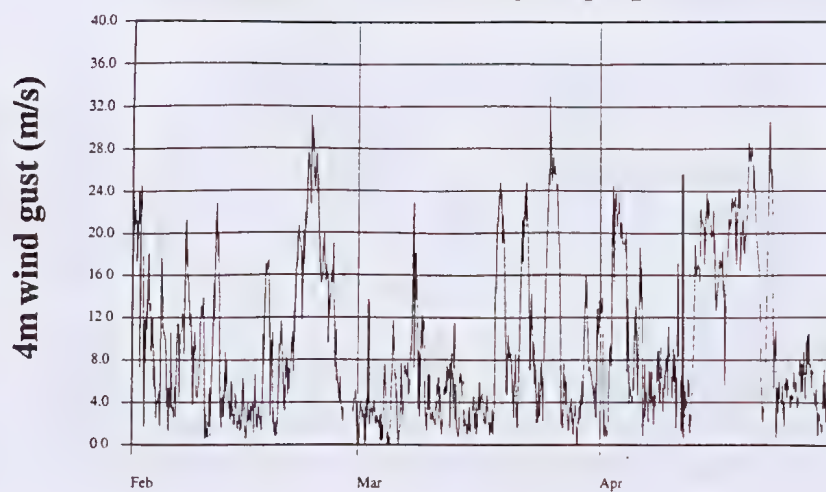
(2a) Mawson Airport - Wind gust graph



(2b) Davis Airport - Wind gust graph



(2c) Bunger Hills - Wind gust graph



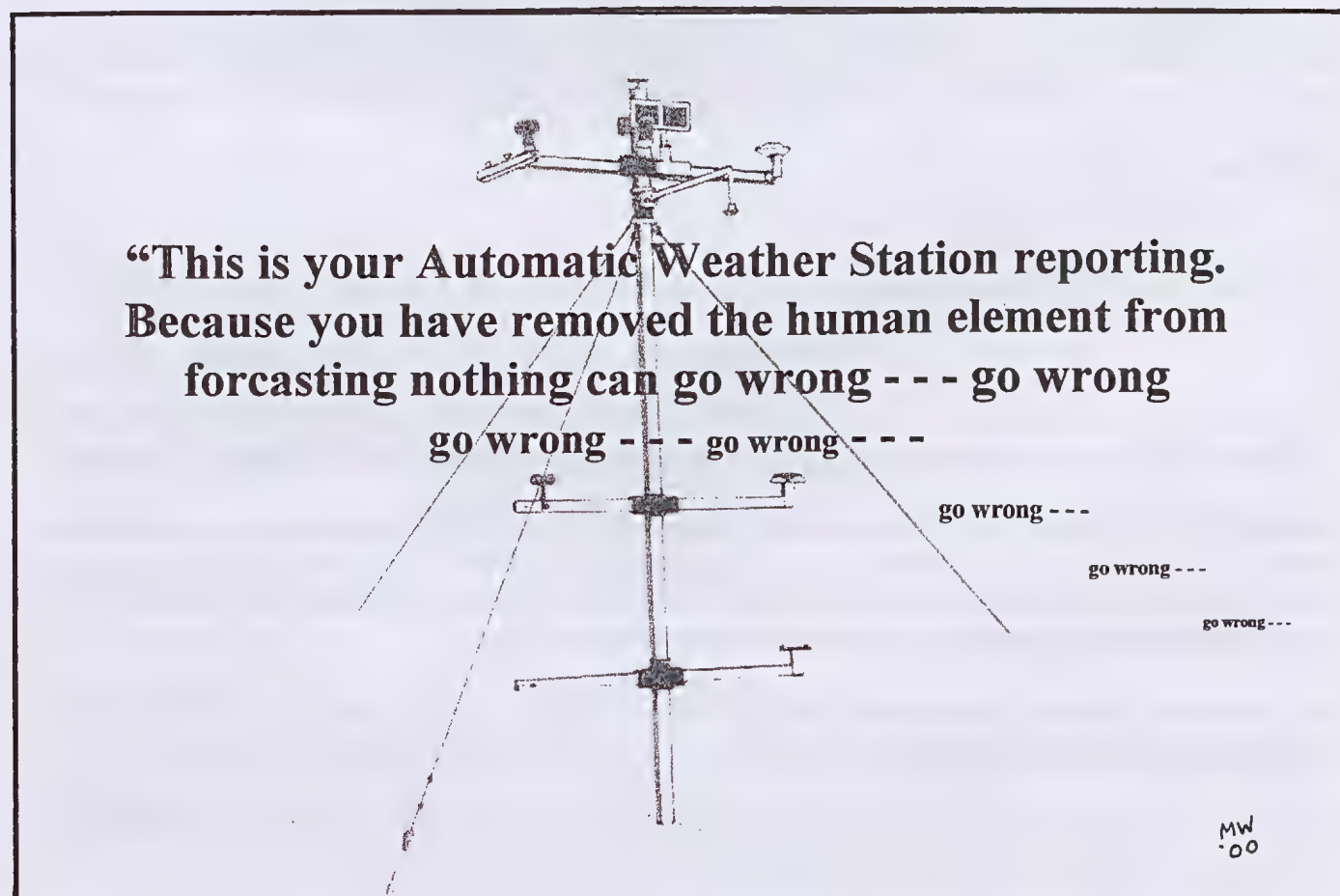
SETTING UP THE FIRST TWO AUTOMATIC WEATHER STATIONS

Due to the vast area of 'unoccupied' Australian Antarctic Territory still remaining after the establishment of Mawson and Davis Stations in the 1950's, it was suggested by the then Minister for External Affairs, Richard Casey, that several Automatic Weather Stations be installed along vacant stretches of the Antarctic coastline as further proof of 'occupation'.

Enquiries made by the Meteorological Bureau revealed that an AWS was being manufactured by a French company, the Societe Industrielle de Telecommande et de Telemecanique, for use in the Sahara Desert, but modifications would need to be made to suit Antarctic conditions. The final design of the equipment, plus a special pre-fabricated hut, radio masts, aerials and batteries etc., took 2 years of collaboration between the Bureau and the Antarctic Division and on 11 January, 1958, Phillip Law and his team landed on Lewis Island in Davis Bay, Wilkes Land, from the MV THALA DAN, ready to set up the first AWS.

All equipment was brought ashore by pontoon from the ship, then hauled by hand up the 200 m slope to be assembled on the chosen site. Once installed and operational, data was broadcast as Morse Code letters to Davis Station and Macquarie Island. A second AWS was installed in 1961 on Chick Island, also off Wilkes Land, and this time small helicopters transported men and equipment to the site because heavy pack ice prevented the MV MAGGA DAN from mooring close to the coast. Modifications to this AWS allowed data to be transmitted by radio to Wilkes Station, then to the Bureau of Meteorology in Melbourne, via Sydney. The present day sophistication of AWS equipment, the means of data transmission and the speed of installation using helicopters or fixed wing aircraft to land at chosen sites, is a stark contrast to the amount of time and effort involved in establishing the first 2 AWS in Antarctica.

(Thanks to an article on early AWS by Dr Phillip Law in AURORA magazine, December 1996.) AW



HELICOPTER RESOURCES ANARE CONTRACT

Helicopter Resources have won back their contract with the Australian Antarctic Division to supply the helicopter support for Australia's National Antarctic Research Expeditions. The contract begins for them at the end of July 2000 and runs for three years with a further two year option. Helicopter Resources have had a long association with the Division and early October 2000 will see the Company's 21st helicopter deployment for ANARE.

The passing years have seen a move from basic light helicopters such as the Hughes 500 and Bell 206 in the 1970s to sophisticated medium sized twin engined Sikorsky aircraft in the 90s. These larger, longer range helicopters provide an impressive radius of operation for field parties and are backed up by the smaller AS350 "Squirrel" helicopters for use in the more local types of operations.



A Sikorsky S-76 over Antarctica. Photo: Ward Bremmers, (Chief Pilot - Helicopter Resources.)

Sikorsky S-76 helicopters were first used in Antarctica in 1994 when Helicopter Resources embarked two of them on board Aurora Australis for a seasons work for ANARE. The two aircraft supported air transportation for expedition personnel carrying out scientific research activities and also carried out ship-to-shore resupply missions at Mawson, Davis and Casey Stations.

When fitted with auxiliary fuel tanks in the baggage compartment the S-76 is able to fly nearly 500 nautical miles while maintaining safe fuel reserves, and the S-76A is certified for operations down to -34.4°C.

The average season comprises two Sikorsky S-76 helicopters and up to four AS350 Squirrels, depending on field party programmes and their requirements.

MORE HELICOPTER RESOURCES

New Helicopter Underwater Escape Training Facilities in Hobart.

In recent years it has become mandatory to ensure that people flying in the helicopters over cold water are trained in helicopter escape. This was brought home to me in a conversation with Coroner Sandy Jessop from Aberdeen, a university friend who had conducted an enquiry into the loss of 11 men only 600 metres from the drilling platform Cormorant Alpha in the North Sea 61.06'0" N on the 14th March 1992. Underwater helicopter escape training might have saved most of the lives of those men. Today, it is compulsory for anyone working on oil rigs in areas of cold water such as the North Sea to be trained in underwater escape. More than 6 flights a year in helicopters is one guide line that I have heard.

In 1997 the Australian Antarctic Division sent two of the field training officers on a preliminary course to Sale in Victoria at a cost of \$2,000 each by the time they had paid for accommodation, airfares, car-hire, hotels etc. However, expensive as it was to have them trained, upon their return they were able to brief fellow expeditioners and at least make them aware of the dangers of an aircraft water landing.

In 1998 we had a party of some 12 seal observers flying long hours over open water and pack-ice in and out from the ship to the Antarctic coast. These people would have been very vulnerable if the aircraft had landed in the water offshore and it was decided that we should run helicopter survival training for them.

During 1998 a firm of consultants came to Tasmania to run a course for the Antarctic Division, the Police Rescue, Helicopter Resources and a local hotel swimming pool operator. This cost us roughly \$400 per person to run the training course.

Being unable to afford this sort of cost on a regular basis we decided to see who else was interested in setting up our own helicopter safety training facility. Some equipment was already available and having a good response from the Police (safety divers and boats), Helicopter Resources (helicopter seats), SES (trailers and parking) and the Tasmanian Ambulance Service (safety harnesses) we checked with the help of Police Rescue's Paul Steane and Damian Bidgood that we could run our own course legally. CAA confirmed that we could and we found that the price to build our own dunking machine would be less than half of what we had paid out for training the previous year. We would have our own facility!

Brian Douglas of Advanced Welding made the cockpit from aluminium using a few sketches that we supplied and Craig Fox of Industrial Sewing Specialists filled the gaps in the frame with trampoline mesh.

The two floats were constructed out of 300 mm drainpipe and the cockpit attached to them. Two plastic office chairs were bought from the local tip shop and harnesses fitted from the Tasmanian Ambulance Service.

With the addition of safety helmets, diving goggles, Antarctic flotation suits and a life raft for boarding practice we were in business. The first course was run in the diving pool at the Aquatic Centre on the Domain with 14 Antarctic expeditioners who would be flying during the summer observing seals again from helicopters travelling at 80 knots and only 300' above the pack-ice from the ship to the coast, distances up to 200 nautical miles from the ship.

After an instruction briefing at the Antarctic Division by Rod Ledingham on the aims of the course we moved to the diving pool at the Aquatic Centre. With Paul Steane and Damian Bidgood and another police

diver from its Search and Rescue Operations acting as safety officers in the water, the 14 expeditioners were run through a series of exercises:-

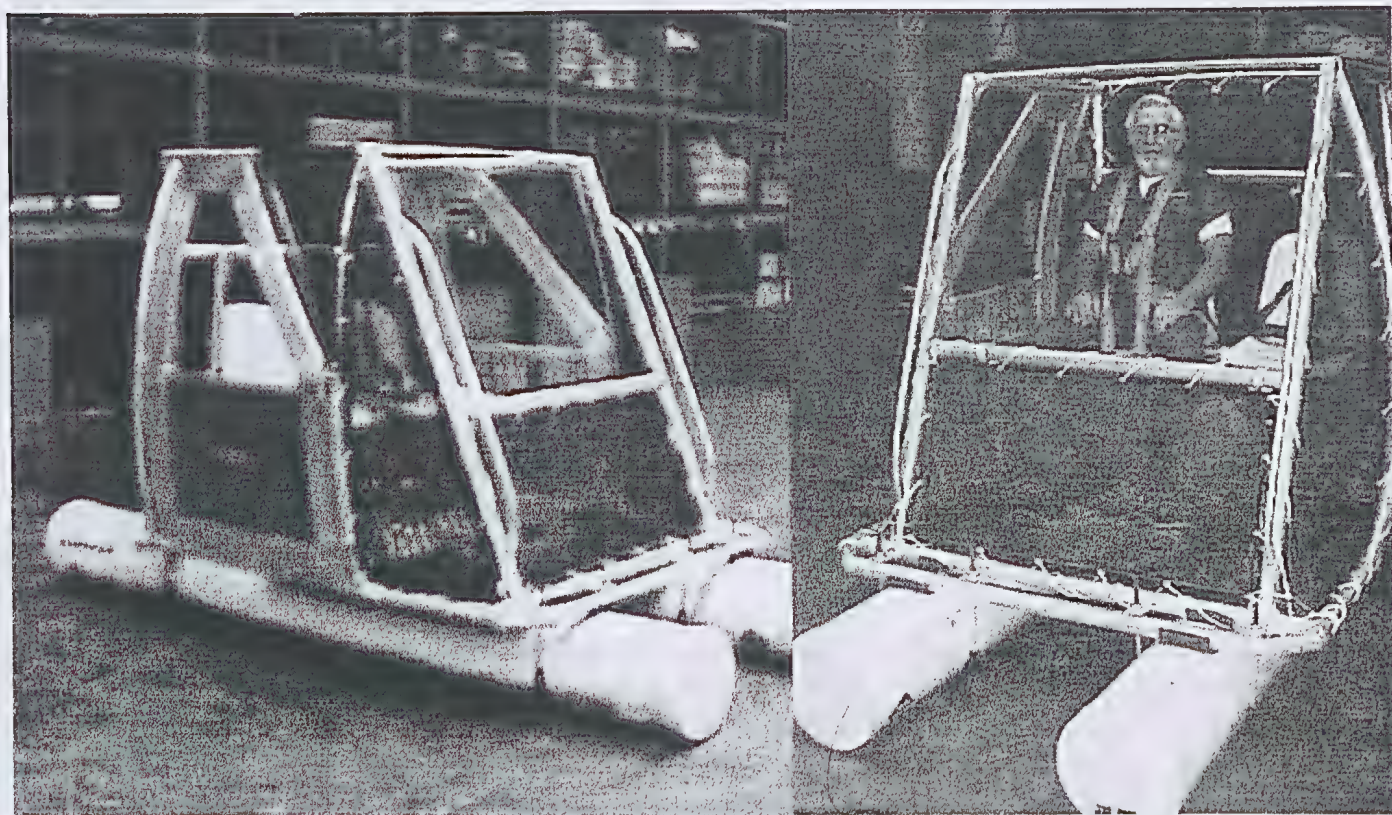
- simply sliding out of the cockpit into the water (helicopters are quite unstable in water even on floats because of the weight of the engines and gearbox high up on the structure)
- upside down with no doors on the cockpit.
- upside down with doors on.
- upside down with no doors but wearing blackout goggles.
- upside down with doors and blackout goggles.
- upside down with one door jammed.
- upside down with one door jammed and blackout goggles.

We also covered:-

- hypothermia and how we combat it by wearing dry suits, flotation suits etc.
 - epirbs , flares, buddylines etc.
 - the HELP position
 - entering life rafts
 - surviving in life rafts.
- (Survival on the open pack-ice was also covered in a separate lecture.)

While it's not a particularly pleasant experience, all the early students came through with flying colours. We now have our own equipment and can run our own courses at very little expense for the main supporters and at a very modest cost to any other Tasmanian group who may have a requirement for such training.

Rod Ledingham / Antarctic Division



The "Helidunker" Helicopter Underwater Escape Module in the Antarctic Division Stores

THE GST EFFECT ON POLAR EXPORTS

Many businesses in Tasmania export goods for use in Antarctica or in the Arctic regions whether it be tractors, food and beverages, fuels for ships or other products. In this last edition of ICE BREAKER before the introduction of the 10% Goods and Services Tax (GST) it is worth looking at how this new (simple) tax system may effect some of the costs involved in the manufacture and exporting of polar supplies.

Though written from a lay-mans point of view the following information is based upon past experience with the Tax Department and the way in which all aspects of Taxation are made as complex as possible.

THE COST OF MAKING THE GOODS

Firstly, the extra costs incurred in the manufacture of the goods must be taken into account. In the "old" system the manufacturer, by quoting his Sales Tax Exemption number, paid no Wholesale Tax on the goods bought for the manufacture of the products. Only when the goods where sold did he add on the appropriate Wholesale Sales Tax when it was applicable. (i.e. not on exports and not to Government agencies or companies who quoted their own Tax Exemption numbers).

With the new (GST) system the manufacturer has to pay 10% GST on all the goods purchased and must also cover the cost of financing this extra 10%. The Australian Tax Office (ATO) maintains that this is not so and that whilst the manufacturer does have to pay out the 10% GST he is also charging 10% GST on the increased price of the goods that he sells, thus making a "profit". It is this "profit" that the manufacturer pays to the ATO at the end of each quarter year.

However, the ATO takes no account of the manufacturer whose main output is for export and therefore does not attract GST. In this case the manufacturer still pays out the GST but without receiving any compensating GST income. On a reasonable export the manufacturer might have to

finance a bank overdraft of \$10,000 or more over a three month period, after which he must try to reclaim this money from the Australian Tax Office. Depending upon how long the ATO takes to repay this GST debt the manufacturer may have to continue to finance this overdraft for several more months to come thus increasing the costs of producing the products even more! Worse still, the manufacturer is expected to absorb this increased production cost himself because according to Government Authorities if he raises his prices he is liable to a \$500,000 fine!

THE COST OF FREIGHTING THE GOODS

And then the manufacturer completes the export order and is ready to send the goods to the buyer by (for example) air freight. Not many aircraft fly directly from Hobart Airport to Europe, USA, or Asia and so the manufacturer must first send the goods to Melbourne (or Sydney). From the factory the goods are collected by the local trucking firm to be taken to Hobart Airport for dispatch to Melbourne. The local trucking firm doesn't consider this to be exporting and so charge GST on top of the charge for delivering the goods to the airport.



The airline flying the goods to Melbourne also doesn't consider it to be an export. More GST. More bank overdraft! And can it be claimed back? This is what one reputable Melbourne company of freight agents wrote in response to a question about GST on export freight:-

I ANSWER THAT QUESTION WITH THE ADVISE THAT IT IS ALL UNCLEAR AS NO FIRM GUIDELINES HAVE BEEN DOCUMENTED.

AT PRESENT ALL AND SUNDRY ARE PRESUMING THAT EXPORT FREIGHT WILL BE EXEMPT, THIS IS STRAIGHT FORWARD, EXCEPT FOR THE LEGALITIES OF PAYMENT, OVERTIME CONTRACTS ETC. FOR EXAMPLE ONE CLAUSE STATES THAT AN EXPORT IS EXEMPT PROVIDED THE GOODS ARE PAID FOR WITHIN 60 DAYS. THIS IS OBVIOUSLY IN YOUR AREA. AS TO EXPORT FREIGHT IT IS EXEMPT, BUT THE GREY AREA IS INLAND CARTAGE TO THE POINT OF EXPORT, AND OTHER ASSORTED SERVICE FEES PRIOR TO THE POINT OF EXPORT. IT COULD COME DOWN TO THE INCO TERMS OF SALE ON WHAT ASSOCIATED CHARGES FOR EXPORTS ARE EXEMPT, OR WHICH CAN BE CLAIMED AS INPUT CREDITS ETC. IN GENERAL IT IS PROBABLY A GOOD IDEA TO CONTACT TO GET A RULING FROM YOUR LOCAL TAX OFFICE.

WE ARE IN THE SAME BOAT AS YOURSELF, THE SEMINARS TO DATE HAVE BEEN USELESS AND WE ARE WAITING ON INFORMATION FROM OUR ASSOCIATION FOR THE RELATIVE QUESTIONS PERTAINING OUR INDUSTRY.

It makes it very difficult for smaller businesses to be "GST ready" when there are no clear directives from the Australian Tax Office.

THE COST OF SELLING THE GOODS

Additional to the costs of manufacture and shipping, part of the cost of an export sale is in the marketing and selling process. One example of this is where it is necessary to visit an overseas country to discuss products face to face with the potential customer. A return air fare may cost say \$2000 plus the 10% GST. Can this \$200 GST be claimed back from the ATO? What if a sale doesn't result? Can the \$200 still be claimed back,

or must it be added onto the cost of the next export sale?

A second example is where a potential customer is visiting Australia and it is deemed worthwhile to host the visitor during his/her stay here in order to impress them with the products available. Can the GST on meals, entertainment, taxi fares, hotel accommodation, etc. be reclaimed as a part of the cost of making an export sale? Even if no direct sale results at that time?



TPN Members with visitors from overseas.

These are muddy waters but they are even worse when supposing that the answer to this second example is yes, you can claim back the GST on the costs expended on the VISITOR but not on your own personal costs. In this case, will separate receipts be necessary for your meal and the clients meal for example, and supposing that you share a bottle of wine?

There are going to be some difficult times ahead for exporters of Polar supplies and services unless the Australian Tax Office can clarify these and many other questions very, very quickly.

So much for the new (simple) GST tax system.

MW

**ICE
BREAKER** MAGAZINE

POLAR NEWS

MARITIME FOCUS

Work has now started on the redevelopment of the area next to Constitution Dock for the Mawson Place project. The former waterside workers' building will be restored to its original 1930's design and a series of bronze bowls called 'Tidal Pools', sculpted by Stephen Walker, will be installed along the Hobart Ports Corporation building in Argyle St.

Across the road from Mawson Place is the newly opened Maritime Museum in the Carnegie Building in Argyle St. The museum houses memorabilia from Tasmania's maritime history as well as new interactive and themed displays. There are also plans to extend the museum as far as Constitution Dock where the 1867 ketch MAY QUEEN will be docked once it has been fully restored. Restoration work is expected to be finished by 2004 in time for Hobart's bicentenary.

A BIGGER BERG!

B15, the giant iceberg which split from the Ross Ice Shelf in March this year, is about 10 times the size of B10A which posed a potential threat to Antarctic-bound shipping in 1999. The iceberg lies on the side of Antarctica closest to New Zealand and is expected to move into open water in the next 3 months. Sea access to McMurdo Station may be blocked next year and cause problems with re-supplying the base.

POLAR TARTAN

A newly designed Antarctic tartan has been created by Scottish company Celtic Originals on the Isle of Mull. The tartan symbolises the geography of Antarctica and uses colours seen in the wildlife and rocks. Proceeds from the sale of the woollen cloth will be used by the UK Antarctic Heritage Trust to restore and manage historic Antarctic sites.

COOL KRILL

Krill can protect themselves from global warming by swimming into deeper water, away from ultra-violet light, and eating algae containing high levels of natural sunscreens.

CONGRATULATIONS TO:

Peter Hodgman, who retained his Shadow Ministry for Antarctic Affairs in a recent portfolio reshuffle. Peter will also be accompanying a TPN delegation to the SCAR/COMNAP convention and exhibition in Tokyo in July 2000.

Michael Chung, Manager of Hobart provedore W.Chung Sing & Co., for achieving record sales of Tasmanian produce in the 1999 cruise ship season. Michael's company provedored in Hobart and other Australian ports, as well as sending 40 air shipments overseas, including produce to cruise ships in Antarctic waters.

Leigh Hornsby, Manager of Helicopter Resources, for winning the latest contract to supply helicopters for the Australian Antarctic Division.

Chris Drinkwater and **Graeme Phillips** of Hobart Ports Corporation, for their continued international promotion of Hobart and Tasmania as a tourist destination for cruise ships.

LATEST ANTARCTIC DATA BASE

The Australian Antarctic Division has established a searchable directory which lists 600 records on Antarctica, with links to many other data sets, so that faster access to information is now available to the broader community. The web address is:- www-aadc.antdiv.gov.au/Metadata

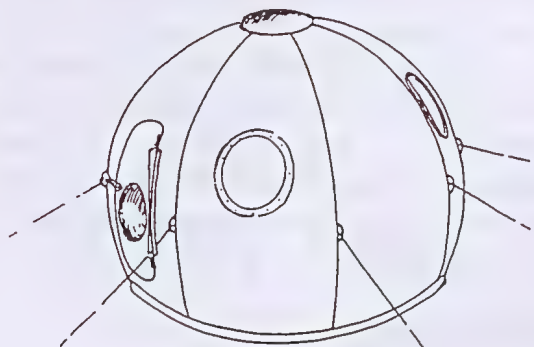
OCEAN FUNDS NEEDED

Australia's CSIRO requires \$1 million worth of new technology to participate in a new global ocean observing system called Argo, which will involve a network of 3000 profiling floats, including 900 in the Southern Ocean. The floats are designed to sink to depths of 2 kms to gather ocean data, then return to the surface every 10 days to transmit the information via satellite to researchers determining climate changes. Dr Steve Rintoul is the leader of the CSIRO and Antarctic CRC team which will be involved in the project should adequate funding be made available.

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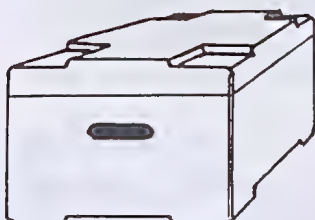


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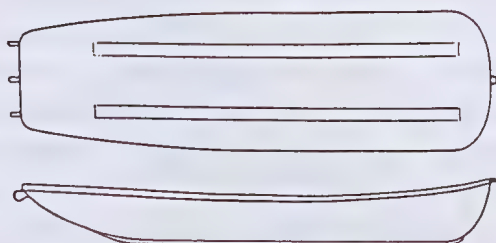
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POLAR NEWS

ANTARCTIC SKY WATCH

- The likelihood of seeing an aurora australis in Tasmanian skies is greater this year because both southern and northern lights will be increasing in intensity during an 11 year peak in the sunspot cycle. Scientists in Tasmania have established an auroral radar system at Bruny Island as part of the Tasman International Geospace Environment Radar (TIGER). Intersecting radar beams from Bruny Island and from New Zealand will focus on Antarctica to enable physicists to research aurora and other space weather phenomena.

- Australian astronomers in Antarctica have installed a self-contained automated facility to continually monitor atmospheric conditions so that a site can be chosen to establish a \$15 million automated, cold-resistant, 2 metre telescope. The Joint Australian Centre for Astronomical Research in Antarctica is responsible for the experiments and further details are available at: www.phys.unsw.edu.au/~mcba/aasto.html

- The South Pole Infra Red Explorer (SPIREX) telescope has recently discovered a “Kangaroo nebula” near Eta Carina, one of our galaxy’s largest stars. The nebula is hidden from optical telescopes by a black curtain of gas, but shows up in infra-red because it is being heated by solar winds from Eta Carina. Developed by astronomers from the University of New South Wales and from USA, SPIREX takes advantage of the cold, dry and stable conditions at the Pole to take the most sensitive infra-red images obtainable in the world.

IMMUNITY LOSS

Recent research shows Antarctic expeditioners suffer immune system losses, although the causes are still unknown. This has attracted the attention of US space scientists who are interested to know if these losses will relate to the well-being of astronauts involved in long-term living in space.

NO MORE NUMBERS

According to the Director of the Australian Antarctic Division, Dr Tony Press, approval for further hot-iron branding of elephant seals on Macquarie Island has not been applied for this year. Parks and Wildlife Service officers drew attention to the potentially damaging after-effects of the practice earlier this year, and even the bronze seals near Victoria Dock in Hobart were branded in protest. Animal welfare groups in New Zealand also lodged protests, and the NZ Department of Conservation have now ceased the hot-iron branding of endangered Hooker’s sea lions as well.

FOSSIL LIFE

A large collection of Antarctic fossils, believed to date back 75 million years, is being examined by scientists at Townsville’s James Cook University. The fossils, mostly from Seymour Island off the tip of the Antarctic Peninsula, will be studied for clues to the evolution of life, particularly during the Cretaceous-Tertiary period, when dinosaurs and many other marine and terrestrial organisms died out. Whereas most research is usually concentrated on extinct organisms, these fossils will be studied to discover which marine molluscs have survived, and it is only the samples from Seymour Island that offer this opportunity.

SOUTH SEAS SEARCH

Deep Sea Odyssey, an adventure-exploration company co-founded by Jacques Cousteau’s son Jean-Paul, intends to search for live giant squid in the Kaikoura Canyon, a 1750 m deep sea trench off the east coast of New Zealand. The team will be equipped with two Deep Rovers, clear bubble-shaped craft designed to dive deeper (over 600 m), stay down longer (up to 72 hours) and manoeuvre more freely than conventional submarines. After following sperm whales, known predators of the giant squid, into the Canyon, the Deep Rovers will be set up with scientists and cameramen to record any sightings of the squid, which has never been seen live in its natural habitat.

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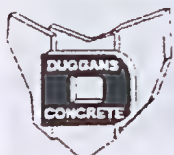
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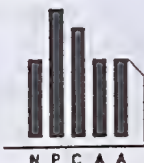
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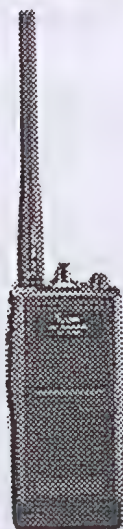
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POLAR NEWS

TPN ELECTIONS SOON

Nominations for Tasmanian Polar Network office-bearers are being called for next TPN meeting (June 2) so that committee members can be elected at the Annual General Meeting, which will be held possibly as late as September 1, 2000.

Positions to be filled if current office-bearers are not re-elected unopposed include President, Senior Vice-President, Vice-President, Secretary, Treasurer and 3 Committee Members. One Committee Member's position is already vacant due to the resignation of Jennifer Trethewey, former manager of Antarctic Adventure. (Jennifer's managerial position has since been filled by Jennifer Neville, who will hold that position until a decision has been made regarding the future ownership of Antarctic Adventure.)

ICY GST TOO!

The Australian Antarctic Division has had to spend over \$60,000 to install new computer equipment and hire a full-time tax expert to cope with the changes required because of the Goods and Services Tax regulations. All essentials, such as fuel, clothing, medical supplies, spare parts and pre-prepared food for the 4 major Antarctic bases and any summer-only camps, will be subject to the new tax, although the extra costs can be claimed back as tax credits later in the year.

IAATO CONFERENCE IN HOBART

The four day annual meeting of the International Association of Antarctic Tour Operators in June this year will consist of two days of closed discussions for IAATO members only, then two days of open discussions. Anyone interested in participating in the latter sessions is asked to contact the meetings' organisers well in advance. For further details e-mail: iaato@iaato.org

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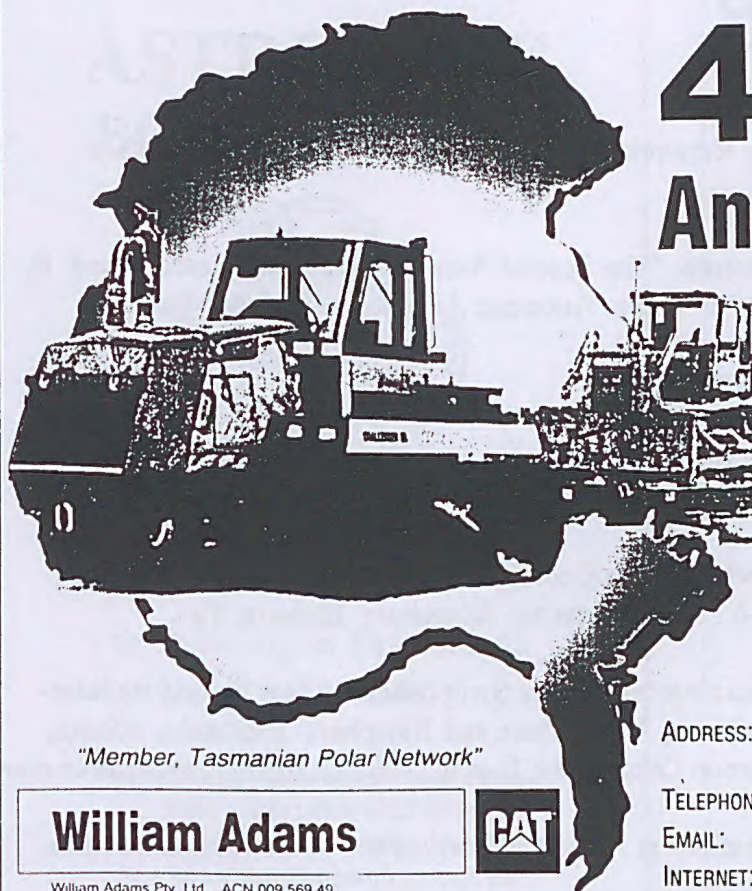
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POLAR CALENDAR

2	June	2000	Tasmanian Polar Network Meeting. 11.00 am. Antarctic Adventure. Hobart, Tas.
2	June	2000	Free Antarctic lecture: 'The Second Ascent of Big Ben, Heard Island' by Rob Easter. 5.30-6.30 pm. Antarctic Adventure. Hobart, Tas.
5	June	2000	World Environment Day.
9	June	2000	Free Antarctic lecture: 'Diving under the Ice' by Peter Sullivan. 5.30-6.30 pm. Antarctic Adventure. Hobart, Tas.
16	June	2000	Free Antarctic lecture: 'The Geological Evolution of Antarctica' by Dr Pat Quilty. 5.30-6.30 pm. Antarctic Adventure. Hobart, Tas.
19-23	June	2000	International Glaciological Society Symposium on Sea Ice and its Interactions with the Ocean, Atmosphere and Biosphere. Fairbanks, Alaska, USA. Contact Simon Ommanney, E-mail: 100751.1667@compuserve.com
21	June	2000	Midwinter celebrations at Antarctic Stations and some Australian cities.
23	June	2000	Workshop on Tourism in the Ross Sea. Christchurch, N.Z. For further details contact v.allan@antarcticanz.govt.nz
25-28	June	2000	International Association of Antarctic Tour Operators (IAATO) Meeting. Hobart, Tas.
2-5	July	2000	Second International Conference on Contaminants in Frozen Ground. Cambridge, U.K. Contact www.freezingground.org/
3-6	July	2000	52nd Annual Meeting of the International Whaling Commission. Adelaide Convention Centre, Adelaide, South Australia.
9-13	July	2000	3rd SO-JGOFS Symposium - The Southern Ocean: climatic changes and the cycle of carbon. Brest, France.
10-22	July	2000	XXVI SCAR& XII COMNAP Meetings. Tokyo, Japan. Exhibition 10-13 July. Further info on http://www.nipr.ac.jp/SCAR-COMNAP-2000-Tokyo
1	September	2000	Tentative date for TPN Annual General Meeting. Hobart, Tas.
??	September	2000	ABCTV's QUANTUM programs on Hobart's Antarctic Connections.
23	October	2000-	CCAMLR meetings. Hobart, Tas.
3	November	2000	

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Tasmanian Teal Buggy during a recent expedition to Mawson's Hut, Antarctica

THE BACK PAGE

ANTARCTIC AND SOUTHERN OCEAN SHIPPING CALENDAR

1	October	2000	AURORA AUSTRALIS V1	Departs Hobart for Port Arthur, Tas.
4-7	October	2000	AURORA AUSTRALIS V1	Marine Science.
7	October	2000	POLAR BIRD V2	Departs Fremantle, W.A.
16-20	October	2000	POLAR BIRD V2	Heard Island.
19-24	October	2000	AURORA AUSTRALIS V1	Davis Station.
29 1	October November	2000- 2000	AURORA AUSTRALIS V1	Mawson Station.
1-4	November	2000	POLAR BIRD V2	Arrives Hobart, loads for Macquarie Is.
6-8	November	2000	AURORA AUSTRALIS V1	Heard Island.
7-12	November	2000	POLAR BIRD V3	Macquarie Island.
16-19	November	2000	AURORA AUSTRALIS V1	Fremantle, W.A.
18-19	November	2000	POLAR BIRD V3	Marine Science. Bio sea ice study.
23-27	November	2000	POLAR BIRD V3	Casey Station.
28-30	November	2000	AURORA AUSTRALIS V4	Heard Island.
4-8	December	2000	AURORA AUSTRALIS V4	Mawson Station.
6-9	December	2000	POLAR BIRD V3	Arrives Hobart, loads for Casey Station.
13-14	December	2000	AURORA AUSTRALIS V4	Davis Station.
15-17	December	2000	AURORA AUSTRALIS V4	Sansom Island.
18	December	2000	AURORA AUSTRALIS V4	Davis Station.
19-24	December	2000	POLAR BIRD V5	Casey Station.
28-30	December	2000	AURORA AUSTRALIS V4	Arrives Hobart.
2-6	January	2001	POLAR BIRD V5	Arrives Hobart.
10-21	January	2001	AURORA AUSTRALIS V6	Marine Science.
18-19	January	2001	POLAR BIRD V7	Davis Station.
20-22	January	2001	POLAR BIRD V7	Sansom Island.
22-23	January	2001	AURORA AUSTRALIS V6	Mawson Station.
24 23	January February	2001- 2001	AURORA AUSTRALIS V6	Marine Science.
25-30	January	2001	POLAR BIRD V7	Mawson Station.
4	February	2001	POLAR BIRD V7	Heard Island.